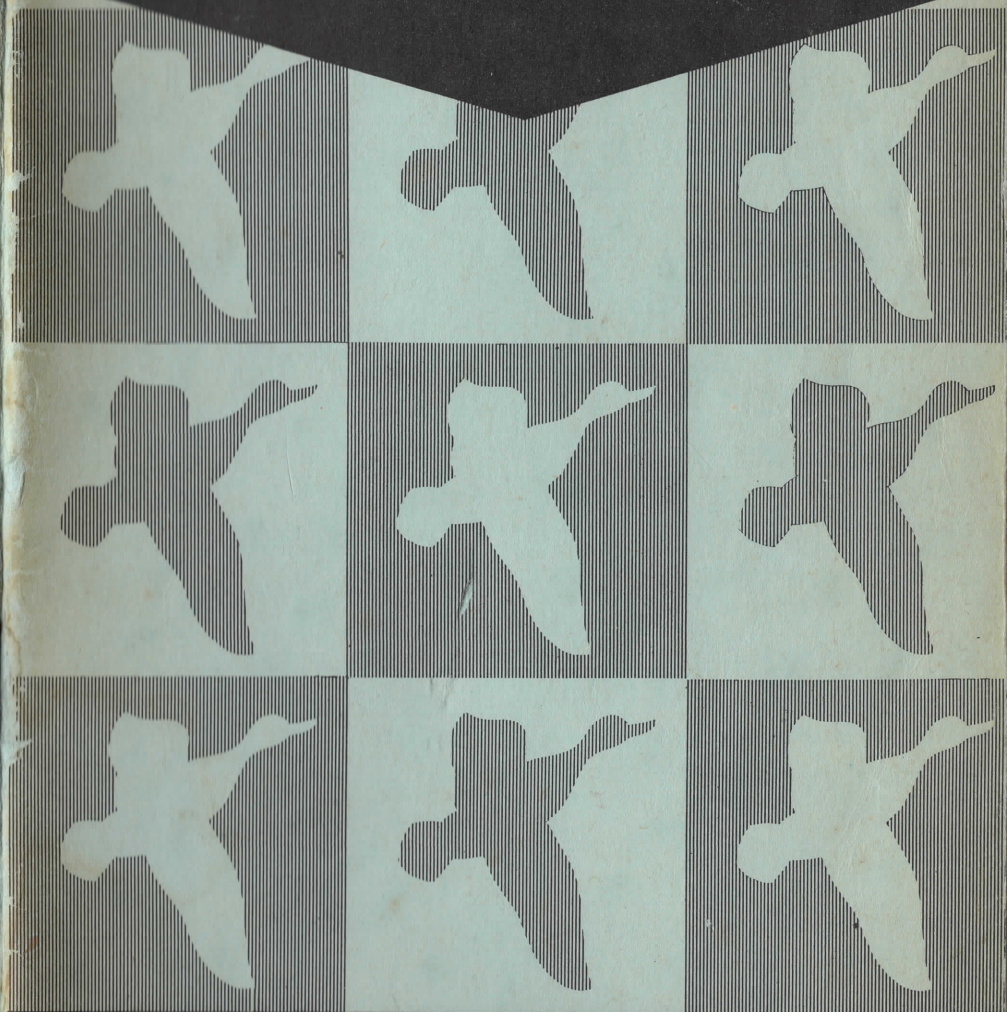


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Shooters' Guide to New Zealand waterbirds



Wildlife Branch, Dept. of Internal Affairs

Acknowledgments

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SHOOTERS' GUIDE TO NEW ZEALAND WATERBIRDS

by

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Department of Internal Affairs

INTRODUCTION

EACH May some 40,000 New Zealanders go gamebird shooting and most of them at one time or another hunt waterfowl, mainly ducks. Years ago, when there were still vast areas of swamps, lagoons, and shallow lakes teeming with waterfowl, there were many less shooters and a duck was just a duck. Nowadays the once vast areas of wetlands have shrunk and with them the number of waterbirds, particularly ducks. While some species continue as game, others have had to be given protection to save them from extermination. Even with the game species, if we are only to take a yearly crop and not make inroads on the breeding stock, bag limits become an important tool of management. A duck can no longer be just a duck. It is necessary to know what kind of duck.

The main aim of this booklet is to help shooters to identify their game and thus gain added enjoyment from their sport, at the same time assisting with conservation. Apart from game birds, the illustrations include some birds they may see about our wetlands. Through ignorance or carelessness these are sometimes destroyed, whereas if they are known, much enjoyment may be obtained from just observing them. The law today requires identification first before shooting and ignorance is no defence in a court of law. Some additional material has been added for the general information of waterfowl hunters, especially for those just starting the sport. Finally, it is hoped that this booklet will be of assistance to the thousands of New Zealanders who find interest and recreation in viewing wildlife on our wetlands.

THE ILLUSTRATIONS

Those of swans, geese, and paradise duck are drawn in direct proportion to each other, but for reasons of space they are reduced by one-sixth of their true proportion relative to the remaining ducks, which are also in direct proportion to each other. Where pairs of birds are depicted the female precedes the male and both the view from above (dorsal) and view from below (ventral) are given. After the ducks the birds shown on each of the last pages are in direct proportion only as far as the birds on each page are concerned.

BIRDS ILLUSTRATED

Common Name	Scientific Name	Maori Name
Mute swan (white swan)	<i>Cygnus olor</i>
Black swan ..	<i>Cygnus atratus</i>
Canada goose ..	<i>Branta canadensis</i>
Cape Barren goose ..	<i>Cereopsis novaehollandiae</i>
Paradise duck ..	<i>Tadorna variegata</i>	Putangitangi
New Zealand shoveler ..	<i>Anas rhynchotis</i>	Kurewhengi
Mallard	<i>Anas platyrhynchos</i>
Grey duck	<i>Anas superciliosa</i>	Parera
Grey teal	<i>Anas gibberifrons</i>	Tete
New Zealand scaup (black teal)	<i>Aythya novaeseelandiae</i>	Papango
Brown teal	<i>Anas castanea chlorotis</i>	Pateke
Blue duck	<i>Hymenolaimus malacorhynchos</i>	Whio
Pukeko	<i>Porphyrio porphyrio melanotus</i>	Pukeko
Australian coot ..	<i>Fulica atra australis</i>
Marsh crane	<i>Porzana pusilla</i>	Koitareke
Spotless crane ..	<i>Porzana tabuensis</i>	Puweto
New Zealand banded rail	<i>Rallus philippensis</i>	Moho-pereru
Southern crested grebe	<i>Podiceps cristatus</i>	Putekeke
New Zealand dabchick	<i>Podiceps rufopectus</i>	Weweia
Black shag	<i>Phalacrocorax carbo</i>	Kawau
White heron	<i>Egretta alba</i>	Kotuku
White-faced heron ..	<i>Notophox novaehollandiae</i>	Matuku-moana
Royal spoonbill ..	<i>Platalea leucorodia</i>	Kotuku-ngutupapa
Bittern	<i>Botaurus stellaris poeciloptilus</i>	Matuku

KNOW THE RULES

Just as in any other sport, there are rules that must be obeyed. Set out below is a paraphrase of, and notes on, the main provisions of the Wildlife Acts of 1953 and 1959, the Wildlife Regulations 1955, and the Wildlife (Canada Goose) Notice 1959. This does not include all the provisions, so sportsmen, particularly occupiers shooting without a licence, are urged to make themselves conversant with the full provisions.

Each year, the Minister of Internal Affairs notifies in the *New Zealand Gazette* details of district restrictions pertaining to an open season for game in each acclimatisation society district. These include the duration of the season, times of shooting, species of game which may be shot, possession and bag limits, and any additions to or deletions from the list of closed game areas. It is possible to sight a copy of the *Gazette* at acclimatisation society offices, public libraries, and post offices, while copies are lodged at Magistrates' Courts and police stations. The *Gazette* is also on sale from the Government Printer, Wellington.

Much information for shooters is given on the shooting licence, including information about local wildlife refuges, **so check carefully both sides of your licence.** If in any doubt about the rules ask your local acclimatisation society. Your trips afield will be more enjoyable if you know the rules, and abide by them. They are designed not to frustrate you, but to perpetuate your sport.

Waterfowl shooting on the Chatham Islands is subject to special rules laid down by the Chatham Islands (Wildlife) Notice 1956.

Licences

It is an offence to shoot game* without a licence, unless you are the occupier of land; or to shoot any game other than birds for which the season is open in the district where you shoot; these are listed in the licence for each district.

If you are the occupier of land you may shoot game on your property in season without taking out a licence but you must comply with all restrictions applying to any licence holder. **The occupier no longer can delegate this hunting privilege to any other person.** At most only three people on one property can shoot without a licence, namely the occupier, wife (or husband) and any one

*Game means those birds which may be shot in an open season only and for which a licence is necessary.

son or daughter of the occupier. If there are several occupiers on the property, only one has the privilege. He must be nominated in writing by **all** the other occupiers as the one having this privilege. The nomination must be sent to the local acclimatisation society for endorsement **before** it takes legal effect. If the lessee, manager, or sharemilker resides on the land and the owner does not, the owner cannot shoot there without a licence.

Before a licence is valid it must be signed by the issuing agent or a person authorised on his behalf and **it must be signed by the shooter**. If a licence is lost or becomes mutilated the society is authorised to replace it.

Guns

It is illegal to take game in any other manner than by shooting with a shotgun. It must be a shoulder gun, which does not exceed 12 gauge. The cartridge must not exceed $2\frac{3}{4}$ in. in length.

Every gun must have its magazine so adjusted that the gun is incapable of holding more than two shells in the manner described in the regulations. These, in effect, stipulate that any autoloading or repeating shotgun used for hunting or killing game shall be so adjusted that the gun is incapable of holding more than two shells without the removal of a metal pin set transversely through the magazine and riveted at both ends.

One satisfactory method of pinning is as follows:

Drill a $\frac{1}{16}$ in. or larger hole through both walls of the magazine tube just below the threaded part that the fore-end cap screws onto, slightly countersink both holes. In most commonly used guns insert a piece of wooden dowelling or metal rod, $\frac{3}{8}$ in. diameter and $8\frac{1}{2}$ in. long, in the magazine tube. This will prevent more than one cartridge being put in the magazine. Then place a soft metal pin across the magazine through the two countersunk holes, lightly rivet both ends, and dress off with a file and fine emery paper until there is no projection. This method will comply with the regulations and will not weaken the gun or affect the correct functioning of the action.

A common method of converting a five-shot autoloader to a two-shot is the fixing of a length of metal rod to the fore-end cap either by screwing or welding. This method is permitted on gun club grounds but, as it does **not** comply with the requirements of the Wildlife Regulations, if used when hunting game it can result in a prosecution.

Stands or Maimais

In hunting from a stand only one shotgun may be used, except that one other shotgun in a condition not immediately ready for use, may be kept nearby.

A licence to shoot game gives no right of entry to the holder to enter on any land without the consent of the occupier. Similarly, any provision below regarding the occupancy of stands and maimais is subject to the consent of the occupier. In the case of unoccupied land of the Crown, occupier means the Minister of the Department controlling the land.

A society may, at its own discretion, announce a time on any day after which shooting stands may be claimed. The stand is claimed by planting a stake bearing a board or label giving the name, address, and licence number of the claimant. No stand which has been claimed in this way may be subsequently claimed by any other licence holder. A stand cannot be claimed within 100 yards of an already claimed stand unless the occupier of this stand agrees. No person may claim more than one stand. No person, except the occupier of the land, can shoot within 100 yards of a stand for the time being in use. If a claimant does not occupy his stand within one hour after the opening hour of shooting it may be occupied by any other licence holder.

Decoys

Live decoys may not be used and it is illegal to shoot over more than 10 decoys. They must be securely anchored and must not be within 60 yards of any decoys set out by any other person nor must they be spread over an area greater than 30 yards square.

Cylinders

A cylinder or similar device from which shooting takes place must project not less than 2 ft above the surface of the water.

Pond Feeding

No person is allowed to place grain or any other food in or near the margin of any water, or to plant or place such grain or food on any land and then flood it to attract game for the purpose of hunting or killing that game.

Where a society has reason to believe an area has been fed within a period of one month immediately preceding an open season, it may, with the occupier's consent, erect a notice stating that feeding has taken place. If the occupier does not consent, the society may serve written notice upon him requiring him to inform all shooters coming on his land that feeding has taken place. It is an offence to shoot in the vicinity of such a notice or to do so after the occupier has stated that feeding has taken place. An occupier who has received written notice and who fails to inform shooters that an area has been fed also commits an offence.

Sale of Shooting Rights

No person may sell or let for fee or reward any right to hunt or kill game.

Game Possession Limit

In any district on any day for which the Minister has notified the number of game which any one person may have in his possession, it will only be lawful for that person to have more than that number of game in his possession if—

- (a) The excess game were taken by someone else; and
- (b) All the game is labelled: giving the names, addresses and licence numbers of the persons concerned, the name of the society which issued the licences, and the date on which the game were taken.

Sale of Game

Except with the consent of the Secretary for Internal Affairs it is illegal to buy or sell any game or the eggs of any game.

Pursuit of Game

No aircraft, motor vehicle, or unmoored powered boat may be used for hunting game, but a rowboat may be used provided that it is not camouflaged.

No oil may be spread to hunt game or to prevent it alighting on any water. No light may be used to hunt game. No person shall shoot at any game bird not in flight.

Pursuit of Canada Goose

In areas where they are not game—From the end of the duck-shooting season to 31 March there are no restrictions, except that if an aircraft is used the pilot must obtain the prior consent of the occupier over whose land hunting is to take place and also give written notice to the local acclimatisation society seven days beforehand. From 1 April to the beginning of the duck season, Canada geese are protected. During the duck season they may only be shot, and are subject to the same restrictions as are imposed for that season except no licence is required nor is there any bag limit. In the Southern Lakes Acclimatisation District aircraft may not be used unless specially authorised by the Conservator of Wildlife, Queenstown.

Freezers (not private refrigerators)

No person shall place game in a freezer later than three days after the close of the open season for that particular species of game in the district in which it was killed. The number of game kept in a freezer at any one time by any one person must not exceed 20, and while in the freezer game must have the legs attached. A label must be attached to the game and the following particulars must be written thereon:

- (a) Name and address of the owner.
- (b) Date it was placed in the freezer.
- (c) Number of licence (if any).
- (d) If no licence, manner in which ownership was acquired.
- (e) The acclimatisation district in which the game was taken.

ON GUNS AND AMMUNITION

Buy the best gun you can afford. All types, such as side by side, over and under, and autoloading have certain advantages, and the type you select will depend on personal preference. Twelve gauge is the most popular bore in this country, and is likely to remain so until such time as cartridges for 16 and 20 gauges become easier to secure.

Where shooting is done over decoys at ranges of 25–30 yards, the majority of ducks being killed within 30 yards range, a

double gun, bored improved cylinder and half choke, is most suitable for the average shot. If an autoloader is used, one bored no tighter than half choke gives good results; it also lends itself admirably to the fitting of a variable-choke device. This can quickly be adapted to suit the type of game likely to be encountered. When shooting at high flying or passing birds at the maximum shotgun range of 40–50 yards, a tighter boring of up to full choke is recommended, but the average shooter has not the skill to consistently kill birds with a full choke or at extreme ranges. It is not good sportsmanship to persistently shoot at birds which are beyond your capabilities as a gunner. Most of the birds hit will be only wounded and this results in unnecessary losses from crippled birds.

Shot size No. 5 is most suited to duck shooting at a reasonably close range. This will also account for swan and geese at close range, but on these larger birds the usual practice is to use No. 3, or even larger shot. Remember that the larger the shot the fewer pellets in a load and consequently the thinner the pattern will be at a given range.

If novice shooters can force themselves to shoot at their birds coming in, rather than wait until they have passed and are going away, they will secure more game. A bird shot coming in will be hit in vital places rather than in the belly and, unless a wing is broken, the bird may fly a considerable distance before falling, when it will be out of sight and lost to the shooter. Make a real effort to collect every bird you drop, a bird lost is a bird wasted. We just can't afford to squander our stock of game birds, they are an asset with distinct limitations.

USE A DOG FOR RETRIEVING

A retrieving dog is a "must" for the waterfowl hunter if the most enjoyment and value is to be obtained from the other equipment, such as a good gun, decoys, and boat. Under certain conditions, such as when shooting on a river or in heavy raupo, a high proportion of birds dropped is lost to the shooter through failure to retrieve them. This is a shocking waste of game which can be avoided by using good dogs; one of the recognised retriever breeds will be most suitable. They perform well with little training and will readily adapt themselves to life in a town outside the shooting season.

PLEASE RESPECT OTHER PEOPLES' PROPERTY

A great deal of waterfowl hunting is done on private property, but possession of a game-shooting licence does not give any right of entry on any land. The future of your sport is largely dependent on the cooperation of farmers and land-controlling organisations which maintain or create waterfowl breeding and rearing areas. Please do not prejudice your chance of returning to a property or cause it to be closed to other shooters through unsportsmanlike behaviour. Always obtain the occupier's permission before going on his property, and respect any conditions he may impose.

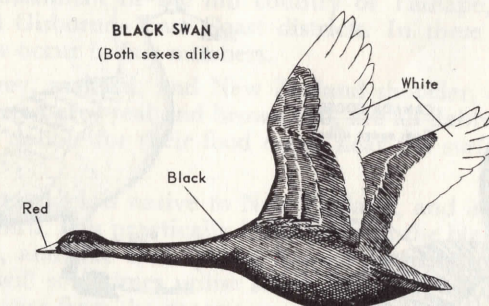
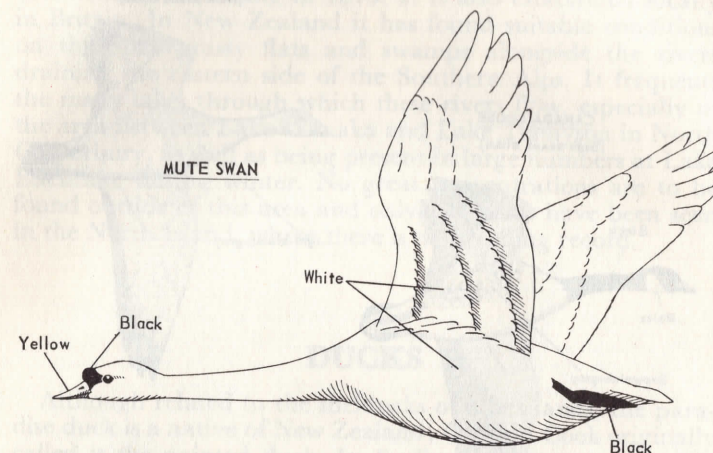
SWANS AND GEESE

Our four present species have all been introduced, although, from fossils, it is known New Zealand once had a large, flightless goose, and a species of swan considerably larger than the black swan.

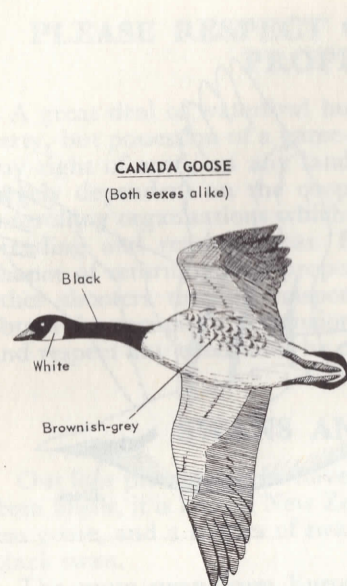
The mute swan from Europe and Asia (a royal bird of England's River Thames) was first liberated here in 1866. It is better known as an ornamental bird in parks, but also exists in the wild in small numbers, particularly in the Canterbury, Otago, Hawke's Bay, and Wairarapa districts.

On the other hand the black swan is now one of the most common and striking of our waterfowl. Native to Australia and Tasmania, its first introduction into New Zealand was at Nelson in 1864. It frequents large shallow lakes, lagoons, and tidal estuaries wherever there is an abundant food supply of suitable aquatic plants. Very big populations, running into many thousands, may be found at such places as Lake Ellesmere in Canterbury, Okarito Lagoon in Westland, Lake Whangape in the Waikato, Whakaki Lagoon near Wairoa, and Te Whanga Lagoon on the Chatham Islands.

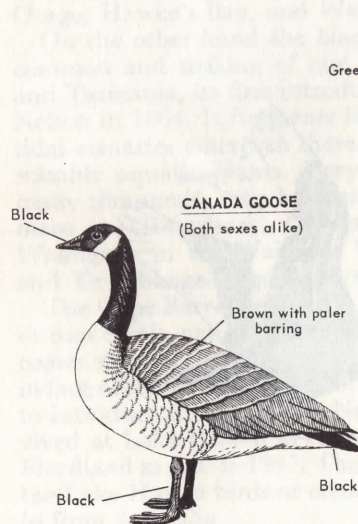
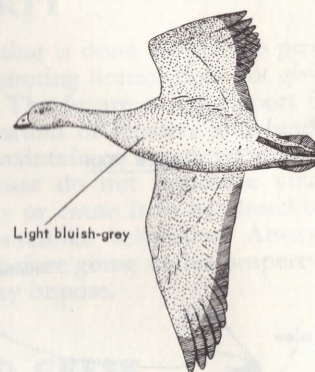
The Cape Barren goose is a primitive goose found on islands in Bass Strait, and on those off the southern and south-western coasts of Australia. Some concern is felt there as to its survival in face of settlement and shooting. Several attempts were made to introduce the birds into New Zealand and some birds survived at Lake Hawea at least until 1936. A few were seen in Fiordland as late as 1947. These could have been derived from the Lake Hawea birds or could have been vagrants which flew in from Australia.



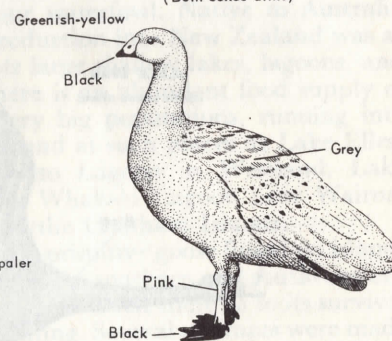
NOTE: In young birds the body is dusky-grey with black markings on flight feathers.



CAPE BARREN GOOSE
(Both sexes alike)



CAPE BARREN GOOSE
(Both sexes alike)



The Canada goose has been introduced on a number of occasions, commencing in 1876. It is also established locally in Britain. In New Zealand it has found suitable conditions on the open grassy flats and swamps alongside the rivers draining the eastern side of the Southern Alps. It frequents the many lakes through which these rivers flow, especially in the area between Lake Wanaka and Lake Tennyson in North Canterbury, as well as being present in large numbers at Lake Ellesmere during winter. No great concentrations are to be found outside of this area and only odd birds have been seen in the North Island, where there is no breeding record.

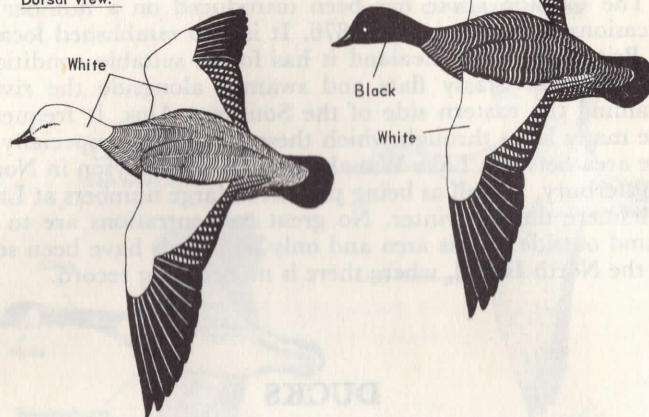
DUCKS

Although related to the shelducks of other lands, the paradise duck is a native of New Zealand; Captain Cook originally called it the painted duck. Its feeding habits are more akin to a goose than to that of our other ducks. In the South Island it is still found in good numbers on the grassy river flats of the mountain valleys, although also present to a much less extent elsewhere. In the North Island there has apparently been a big extension of range since the early days of settlement. Liberations were made on the central volcanic plateau, where the birds are now well established. The great increase in land under pasture, and more recently the widespread building of ponds on hill country sheep farms, has probably assisted spread and establishment in the hill country of Taihape, Hawke's Bay, and Gisborne - East Coast districts. In these areas the birds now occur in fair numbers.

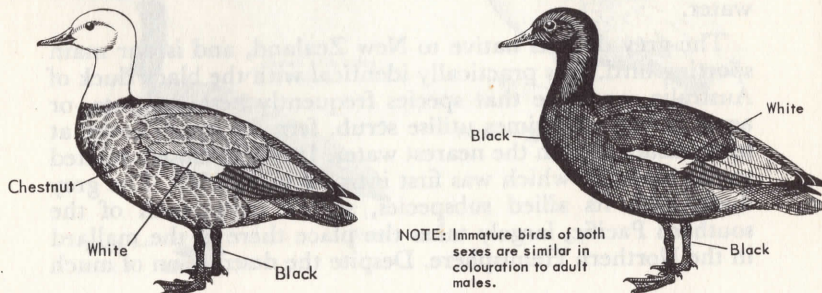
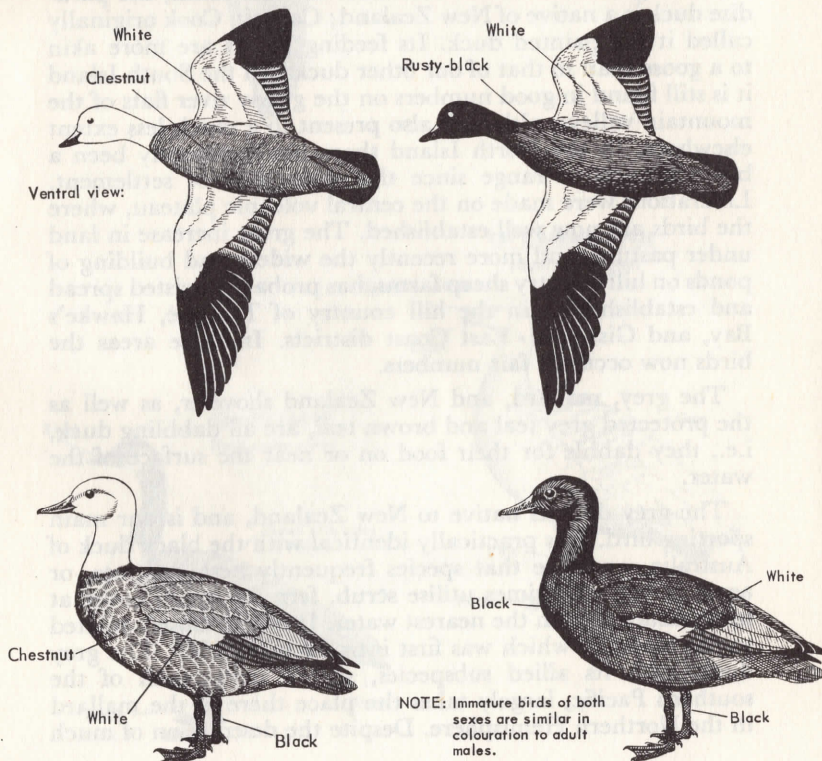
The grey, mallard, and New Zealand shoveler, as well as the protected grey teal and brown teal, are all dabbling duck, i.e., they dabble for their food on or near the surface of the water.

The grey duck is native to New Zealand, and is our main sporting bird. It is practically identical with the black duck of Australia, and like that species frequently nests in trees, or again it will sometimes utilise scrub, fern, or rough cover at some distance from the nearest water. It is very closely related to the mallard, which was first introduced in 1867. The grey duck, with its allied subspecies, spread over much of the southern Pacific, largely takes the place there of the mallard in the Northern Hemisphere. Despite the destruction of much

Dorsal view:



Ventral view:



NOTE: Immature birds of both sexes are similar in colouration to adult males.

of its original habitat, and the establishment of mallards, the grey duck is still the common duck of most of the country but the introduced mallard predominates to the east of the main divide in the South Island and in some southern parts of the North Island.

While it is generally considered that the mallard duck is more adaptable than the grey, and this may be so in particular types of country, e.g., very highly improved farmlands, the fact remains that grey ducks have successfully adapted themselves to drastically altered conditions of habitat, while still retaining the use of habitat as yet not utilised by the mallard.

The mallard, in contrast to the grey duck, highlights plumage changes which ducks undergo. Each summer a moult takes place and the birds assume what is called the "eclipse plumage". While in eclipse females are little changed, but males of the mallard, shoveler, and brown teal lose their brighter breeding plumage and take on plumage closely resembling the female. In the autumn another moult takes place, and the males change from the drab eclipse plumage back to their bright feathers. During this period, which coincides with the shooting season, it is common to see birds in any stage of the moult. With mallards this gives rise to much confusion amongst shooters, who may think these mallard drakes are either females or hybrids between grey and mallard, or even grey ducks.

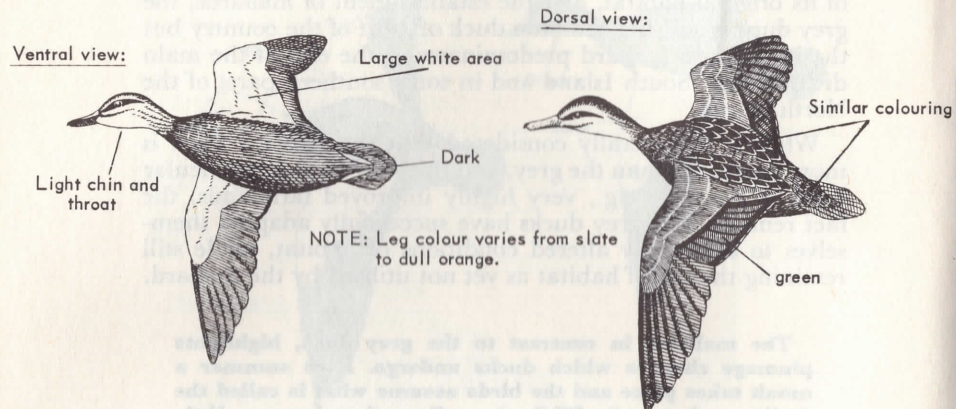
The New Zealand shoveler is another widespread native species which has survived drastic limitation of its habitat. Although not as numerous as the grey duck it is still found in moderate numbers in many districts.

Our grey teal is identical with the Australian species. A grey teal banded in Victoria on 12 May 1957 was accidentally shot in the Waikato during 1959. There is some reason to suggest that a large-scale influx of grey teal from Australia occurred in the autumn of 1957. For a long time the grey teal was considered a rarity, with only two known breeding areas: Rotorua lakes and the Wairarapa district. There is now evidence of the grey teal increasing in numbers and breeding elsewhere. Flocks can now be seen in the Waikato, Kaikoura, Lake Ellesmere, and coastal Otago districts.

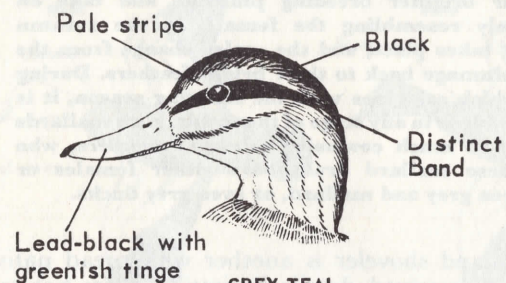
The wing beat of grey teal is much faster than that of the game ducks. When sufficient numbers are grouped together in flight the flocks behave in a closely coordinated manner rather

GREY DUCK

(Both sexes alike)

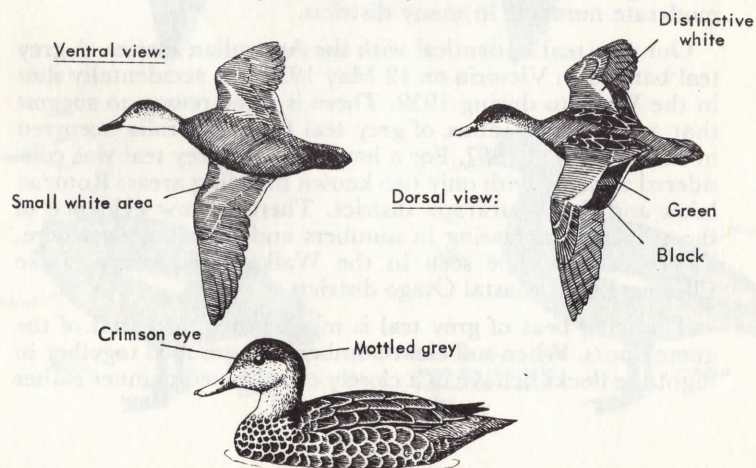


Head detail (both sexes alike)



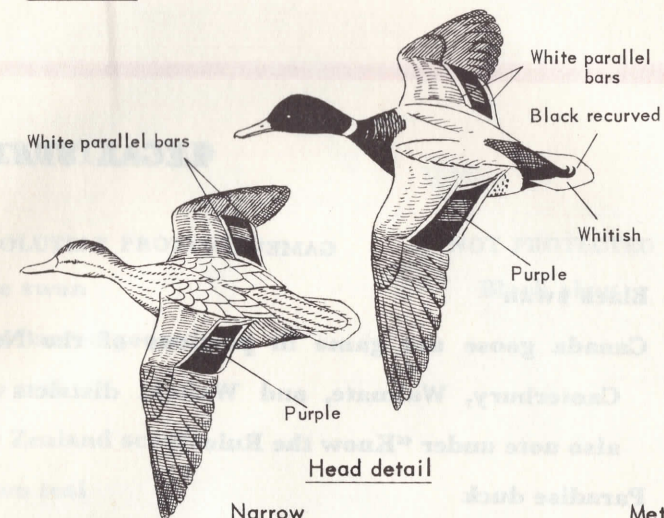
GREY TEAL

(Both sexes alike)

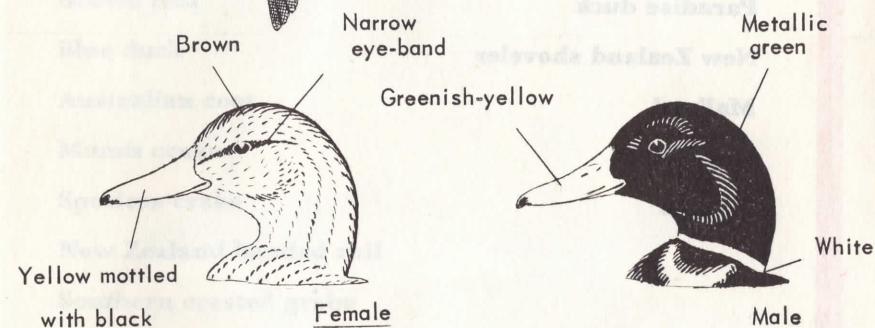


MALLARDS

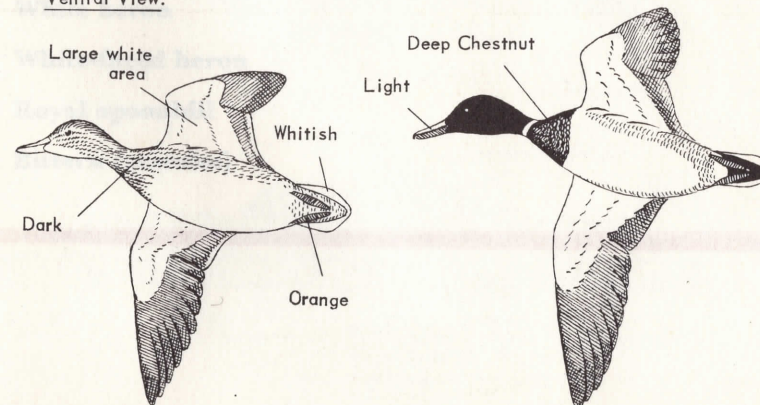
Dorsal view:



Head detail



Ventral View:



LEGAL STATUS OF BIRDS ILLUSTRATED

GAME

Black swan

Canada goose are game in portions of the North Canterbury, Waimate, and Waitaki districts (see also note under "Know the Rules")

Paradise duck

New Zealand shoveler

Mallard

Grey duck

Pukeko

ABSOLUTELY PROTECTED

Mute swan

Cape Barren goose

Grey teal

New Zealand scaup

Brown teal

Blue duck

Australian coot

Marsh crake

Spotless crake

New Zealand banded rail

Southern crested grebe

New Zealand dabchick

White heron

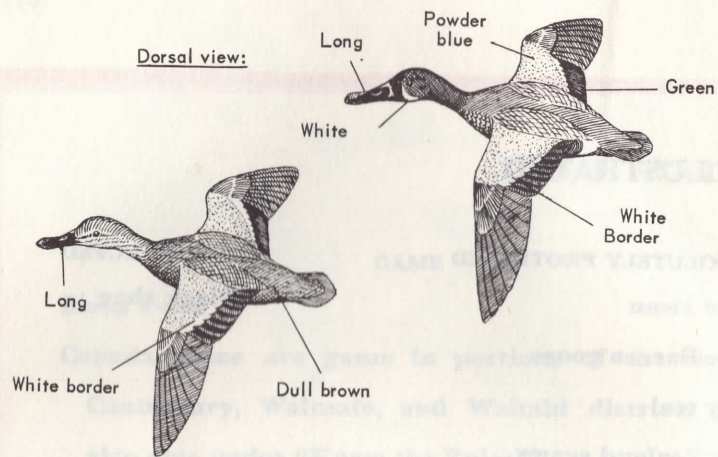
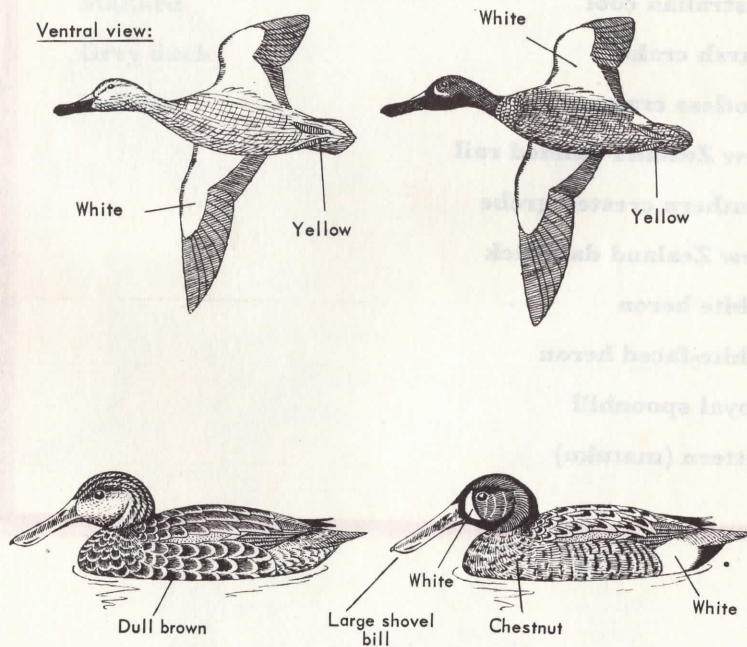
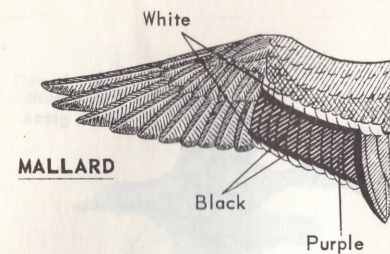
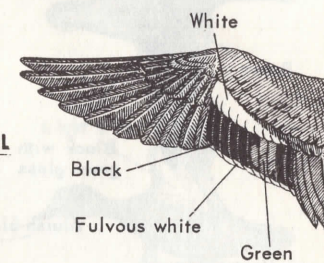
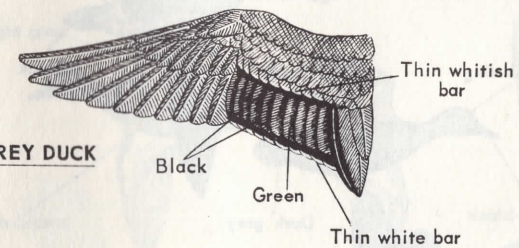
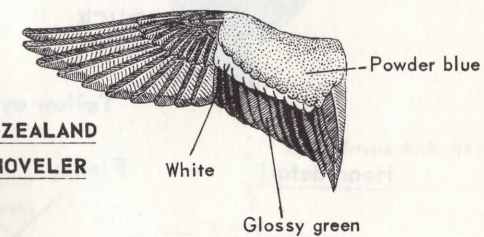
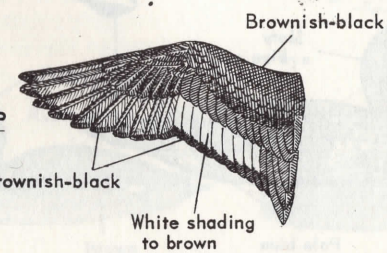
White-faced heron

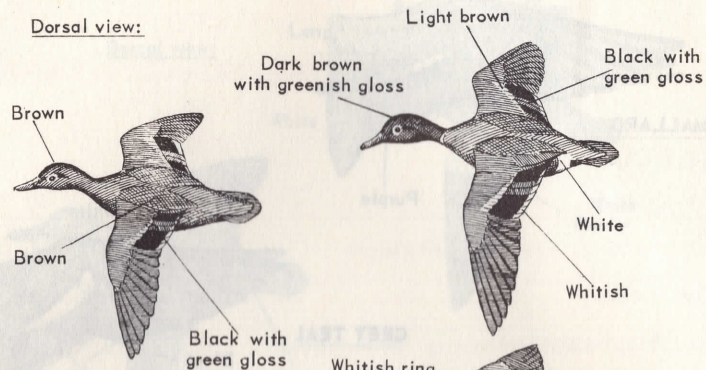
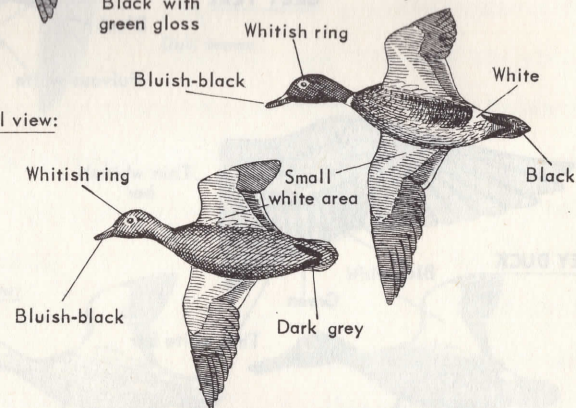
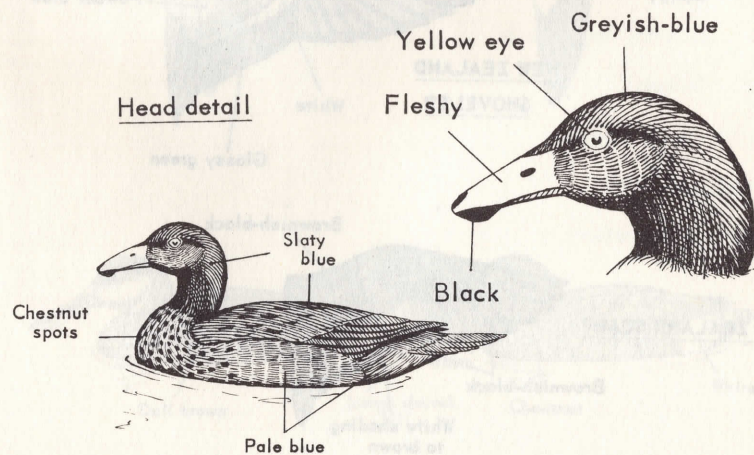
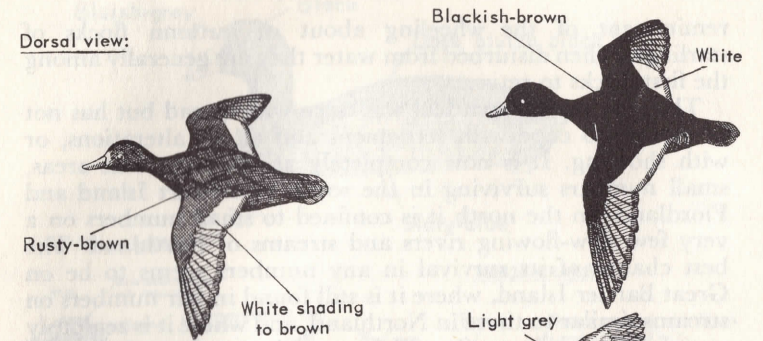
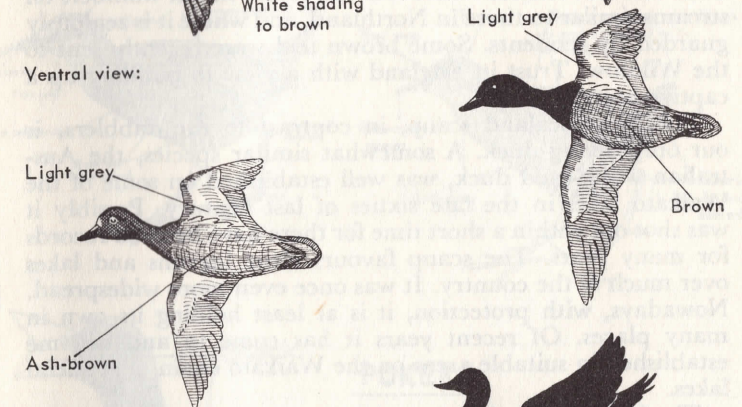
Royal spoonbill

Bittern (matuku)

NOT PROTECTED

Black shag

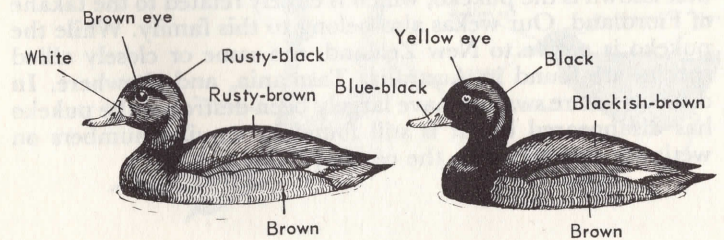
NEW ZEALAND SHOVELERDorsal view:Ventral view:WING DETAILMALLARDGREY TEALGREY DUCKNEW ZEALAND SHOVELERNEW ZEALAND SCAUP

BROWN TEALDorsal view:Ventral view:BLUE DUCKHead detailNEW ZEALAND SCAUPDorsal view:Ventral view:

New Zealand Scaup rising—
patters along top of water with
rapid wing beats.



Mallard-type duck rising



reminiscent of the wheeling about of autumn flocks of starlings. When disturbed from water they are generally among the first ducks to return.

The now rare brown teal was once widespread but has not been able to cope with settlement and all its alterations, or with shooting. It is now completely absent from vast areas, small numbers surviving in the south at Stewart Island and Fiordland. In the north it is confined to small numbers on a very few slow-flowing rivers and streams of Northland. The best chance of its survival in any numbers seems to be on Great Barrier Island, where it is still found in fair numbers on streams similar to those in Northland, and where it is zealously guarded by residents. Some brown teal were recently sent to the Wildfowl Trust in England with a view to building up a captive breeding stock.

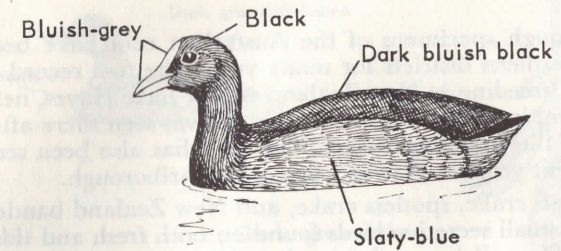
The New Zealand scaup, in contrast to the dabblers, is our only diving duck. A somewhat similar species, the Australian white-eyed duck, was well established on some of the Waikato lakes in the late sixties of last century. Possibly it was shot out within a short time for there have been no records for many years. The scaup favours clear lagoons and lakes over much of the country. It was once even more widespread. Nowadays, with protection, it is at least holding its own in many places. Of recent years it has come in and become established in suitable areas on the Waikato chain of artificial lakes.

The blue duck, while it may once have been seen on low-land waters, is now almost entirely restricted to forested hilly or mountainous country from Coromandel Peninsula southwards. It is not rare, but as it never occurs in flocks, nowhere can it be said to be abundant, being found in isolated pairs and family groups scattered along the length of a river or stream.

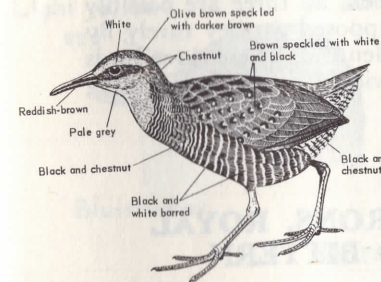
RAILS

Five waterbirds belonging to this family are illustrated. The best known is the pukeko, which is closely related to the takahe of Fiordland. Our wekas also belong to this family. While the pukeko is native to New Zealand, the same or closely allied species are found in Australia, Tasmania, and elsewhere. In districts where swamps have largely been destroyed the pukeko has disappeared but it is still found in varying numbers on wetlands up and down the country.

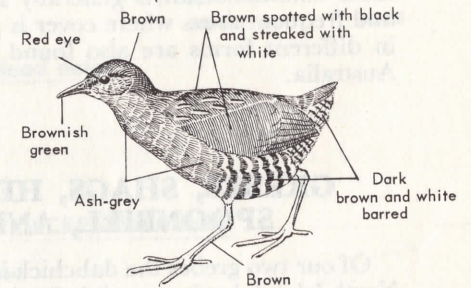
AUSTRALIAN COOT



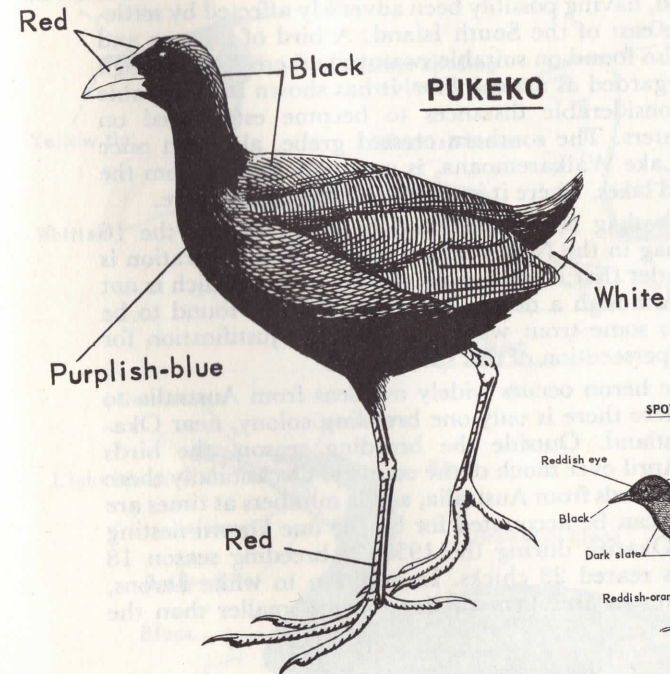
NEW ZEALAND BANDED RAIL



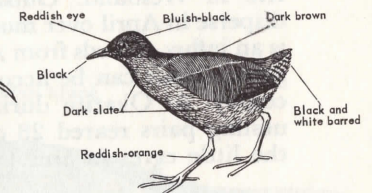
MARSH CRAKE



PUKEKO



SPOTLESS CRAKE



Even though specimens of the Australian coot have been taken in southern districts for many years, the first record of the species breeding in New Zealand was at Lake Hayes, near Queenstown, in 1958. A flock of 70 birds was seen there after the end of the breeding season. The coot has also been seen during recent years in Hawke's Bay and Marlborough.

The marsh crane, spotless crane, and New Zealand banded rail are all small secretive birds found on both fresh and tidal wetlands. The rail is now more plentiful in North Auckland than elsewhere. Although seldom seen, all three are possibly more common than is generally supposed as they rarely fly and frequent areas where cover is plentiful. These three birds in different forms are also found widely overseas, including Australia.

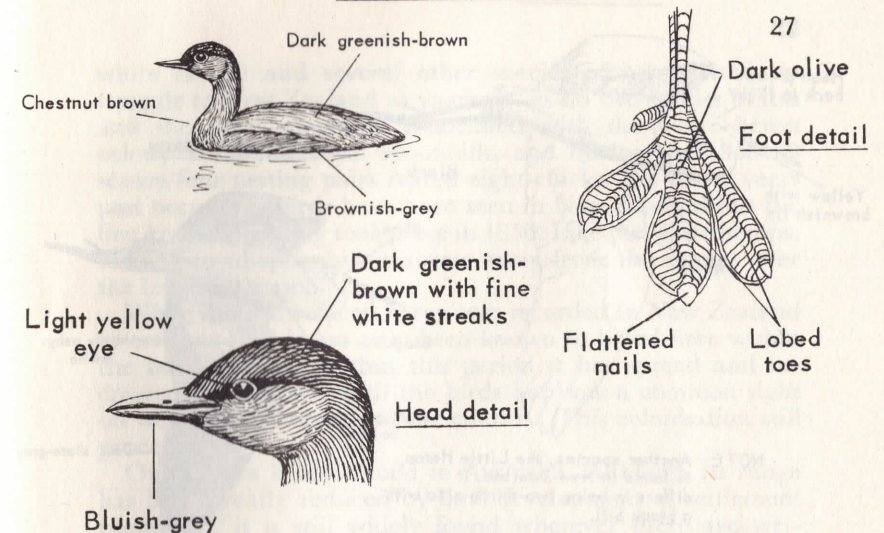
GREBES, SHAGS, HERONS, ROYAL SPOONBILL, AND BITTERN

Of our two grebes the dabchick is more common now in the North Island, having possibly been adversely affected by settlement in the east of the South Island. A bird of lagoons and lakes, it is also found on suitable swamps and creeks. Although generally regarded as a weak flier, it has shown itself capable of flying considerable distances to become established on artificial waters. The southern crested grebe, although once present at Lake Waikaremoana, is now only known from the South Island lakes, where it is widely distributed but rare.

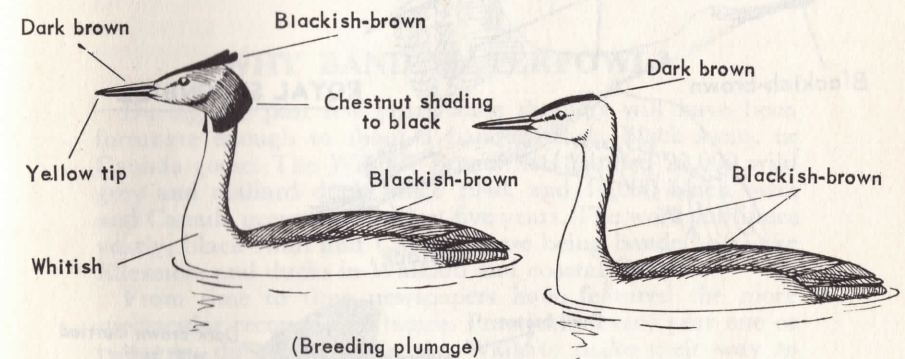
The black shag is the most widely distributed of the 16 species of shag in the New Zealand region. The illustration is also a reminder that it is the **only** species of shag which is not protected. Although a degree of control may be found to be necessary on some trout waters, there is no justification for widespread persecution of this species.

Our white heron occurs widely overseas from Australia to India, but here there is only one breeding colony, near Okarito in Westland. Outside the breeding season, the birds disperse in April over much of the country. Occasionally there is an influx of birds from Australia, as the numbers at times are greater than can be accounted for by the one known nesting colony. At Okarito during the 1958-59 breeding season 18 nesting pairs reared 28 chicks. In addition to white herons, the little egret (a bird very similar to, but smaller than the

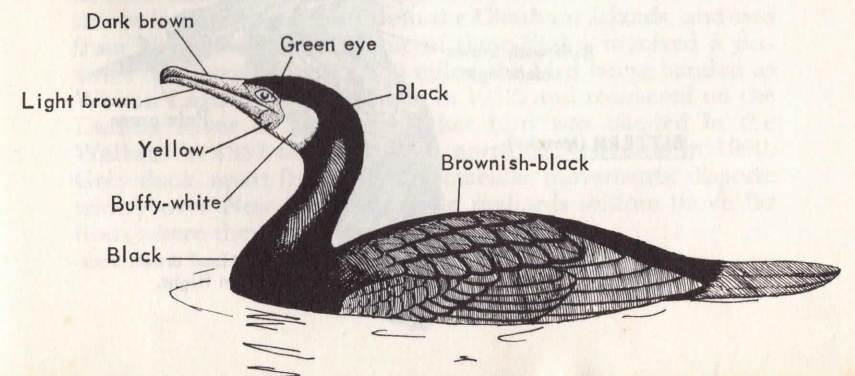
NEW ZEALAND DABCHICK



SOUTHERN CRESTED GREBE

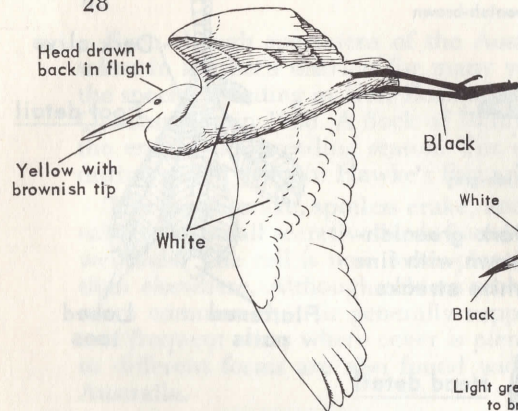


BLACK SHAG

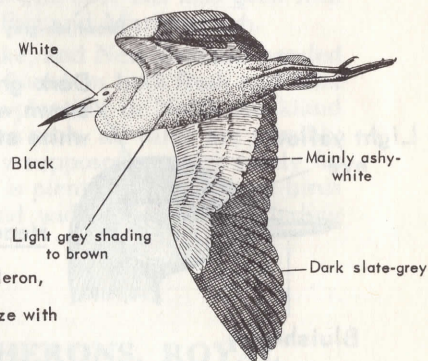


WHITE HERON

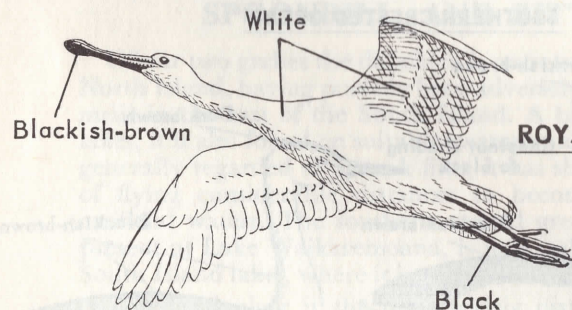
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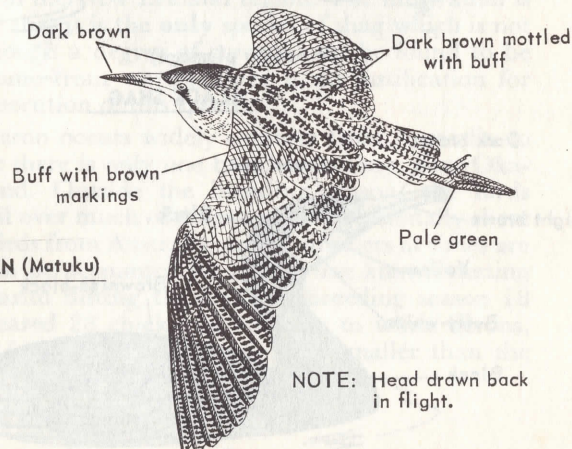
WHITE FACED HERON



NOTE: Another species, the Little Heron, is found in New Zealand. It differs in being two-thirds size with a black bill.



ROYAL SPOONBILL



BITTERN (Matuku)

NOTE: Head drawn back in flight.

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white heron) and several other species of heron similarly straggle to New Zealand as vagrants, as do two species of ibis and the royal spoonbill. Associated with the white heron colony are a few royal spoonbills, and during the 1958-59 season four nesting pairs reared eight chicks. For many years past occasional birds have been seen in New Zealand but the first known breeding took place in 1950. Like the white herons, the few royal spoonbills disperse away from the colony after the breeding season.

While the white-faced heron was recorded in New Zealand as early as 1865 it has only been known to breed here within the last 20 years. Within this period it has spread and increased in numbers until the birds are now a common sight on wetlands over much of the country. This colonisation still proceeds.

Our bittern is also found in Australia. Although its range has been greatly reduced by land development as settlement proceeded, it is still widely found wherever there are wetlands providing cover such as raupo and rushes.

WHY BAND WATERFOWL?

During the past few years some shooters will have been fortunate enough to shoot a banded duck, black swan, or Canada goose. The Wildlife Branch has banded 20,000 wild grey and mallard ducks since 1948, and 14,000 black swan and Canada geese over the last five years. The work continues yearly, black swan and Canada geese being banded at Lake Ellesmere and ducks in Waikato and coastal Otago.

From time to time newspapers have featured the more spectacular recoveries of bands. Practically every year one or two grey duck banded in the Waikato make their way to Southland, a flight of some 700 miles, and the longest recorded in New Zealand. Our grey ducks also cross the oceans, as is shown by three recoveries from the Chatham Islands, and two from New South Wales. One of these flights involved a distance of approximately 1,850 miles, the bird being banded at Wairau Lagoon near Blenheim in 1952, and recovered on the Darling River in 1957; the other bird was banded in the Waikato in 1957 and recovered north of Newcastle in 1960. Grey duck, apart from these spectacular movements, disperse widely over New Zealand, while mallards seldom move far from where they were bred.

All band recoveries are important. When investigations are being made regarding changes in the numbers of our duck populations a band recovery at or near a banding station is just as valuable as one recovered hundreds of miles away. Through these studies the game bird biologist is able as it were "to keep a finger on the pulse of the population" and report whether the condition of the patient is satisfactory. To continue our analogy the biologist must always be alert for signs of deterioration in the health of the patient. He must report on the first signs of this, and suggest remedial treatment before the patient becomes moribund.

Such a report is now printed as Wildlife Publication No. 5, *Mortality and Survival of Grey and Mallard Ducks Banded in New Zealand*, by Dr R. W. Balham and Mr K. H. Miers. In this paper, working from band recoveries, striking differences are shown in survival between grey and mallard ducks. Consider equal populations of 100 immature ducks of both species at the time of banding. During the period it takes all these ducks to die (about six to seven years) 37 bands will have been received from grey duck and 24 from mallard. Shooters bag proportionately more grey duck than mallards, indicating that, in general, shooters will obtain more birds from a grey duck population than from one of mallards.

Overall losses (mortality from shooting, plus all other losses) in an average year amount to 70 per cent in greys and 56 per cent in mallards. Therefore, mallards survive better than greys, or put in another way, at the time of banding, greys have an average expectation of further life of 0.9 years, while mallards have 1.3 years.

Mallards are known to have a significantly larger clutch of young than greys. Every pair of grey duck that lives to breed needs to rear 4.4 young to the flying stage each year to replace losses, while mallards need only 2.9. Such a replacement rate for the grey duck is rather steep, but it must lie within its reproductive capacity, otherwise the species would have become extinct. This productivity does not provide much of a margin to cover future increased shooting pressure.

So from that band recovered by a cooperative sportsman and sent into the Wildlife Branch (and each year we receive some 1,500 bands) eventually we arrive at some worthwhile information. This helps us to work out a management policy for the conservation of our waterfowl.

Please continue to look for leg bands and send them in with the essential details of the recovery, namely, the date and place, to Wildlife Branch, Department of Internal Affairs, Wellington. Please also ensure that you send your name and address, so that we can send an acknowledgment, and tell you where and when the bird was banded.

CONSERVATION OF WATERBIRDS AND THEIR HABITAT

We need to take into account the individual needs of a species as well as the overall requirements generally of this class of birds. As yet we cannot deal with many individual needs, because more facts have to be found out about the various birds. However, we consider sufficient is known to establish the following points about our game species:

Grey, Mallard, and Shoveler Ducks

Although competition between grey and mallard ducks has been shown to go against the former, we can do little to alter the position in districts where mallards are firmly established. We have other districts already endowed with good grey duck populations where, because of novelty and a desire to try and improve an already good thing, individuals and acclimatisation societies desire to breed and liberate mallards. This is considered most unwise, and such attempts should cease as they are contrary to the best interests of those concerned and will almost certainly lead to replacement of the grey duck population.

Species as closely related as these two will, from purely biological reasons, compete more for environmental requirements than distantly related species. When this happens (and most of New Zealand already supplies our proof) the total duck population may not be as great as before liberation and one other thing is certain – the sportsman's take or bag will be very much reduced. In addition to this, the annual take of grey duck must be carefully controlled. Sportsmen, by willingly abiding by bag limits, will benefit themselves and the shooters of tomorrow. Although little is known about the New Zealand shoveler it is reasonable to assume that the need to control the annual take applies equally to this species.

Black Swan

This is a species which thrives on certain classes of water, and there is room for its greater utilisation by shooters. This should be encouraged.

Canada Geese

In North America the Canada goose is regarded as the greatest sporting bird. In New Zealand it is not fully utilised by sportsmen, a sporting asset largely wasted.

Paradise Duck

This species is better adapted to New Zealand's predominantly pastoral farming than any other game bird. Accordingly, its establishment in new areas should be encouraged, provided that careful and prompt action is taken to break up any concentrated grazing by large flocks. There is room for reasonable utilisation by shooters in areas where well established.

Pukeko

There is no real evidence to indicate that pukeko are over all an adverse influence on duck populations. There is adequate provision under existing law to deal with birds damaging crops. It is considered that sportsmen should utilise the birds as a game asset to a reasonable degree but not needlessly slaughter them. They are a colourful and interesting part of the countryside. Again, pukeko may play quite an important part in slowing down encroachment by aquatic vegetation on open duck waters through the bird's habit of feeding on new shoots of certain plants.

Grey Teal

This species, which is absolutely protected, has increased over the last few years. It is one of the main game ducks of Australia, and is well adapted to eventually become a game bird here. Its great increase in numbers has occurred by natural means without the expense of game farms. The waterfowl hunter will be doing his bit towards encouraging its natural establishment if he refrains from shooting the bird until it becomes lawful to do so.

HABITAT

Having dealt with some individual game species, and one possible one, we turn to the most important requirement: habitat – necessary living space for all waterbirds, not only the game species.

"No water, no ducks" is a truism, the relevance of which is not as widely appreciated as circumstances demand. The Wild-

life Branch urges action along four main lines, which needs the wholehearted support of shooters and those interested in the conservation of all waterbirds, if something worth while is to be accomplished.

- (1) As drainage of fertile swamps, lagoons, and shallow lakes has gone too far in many areas there should in future be full and careful consideration given to the sporting, recreational, educational, scientific, and aesthetic values of remaining areas, not just to the economic value of the farm land resulting from drainage. Wetlands should not be destroyed, except for really good reasons. If, after full inquiry, a scheme has to proceed, every endeavour should be made, in conjunction with the Wildlife Branch and acclimatisation societies, to retain areas in water or as wetlands so that no longer can a district be entirely denuded of shallow water and wetland assets.
- (2) Many existing wetlands, lagoons, and shallow lakes should be specially reserved and managed for waterbirds, either as refuges, breeding and rearing areas, or shooting places.
- (3) Investigation is required into ways and means by which such areas can be improved for waterfowl. All shallow water is gradually evolving towards dry land, and this process is aided by vegetation. Many lagoons and swamps no longer contain free water because of an overall mass of raupo and other water plants. Experiments have commenced, and will continue, on the best and most economical means of breaking up the mass of vegetation into a mosaic of open water and vegetation more suitable for ducks. Despite this, raupo and other plants in moderation are of use as cover to a variety of birds, as well as ducks. There must be no suggestion of eliminating these plants, only that they be controlled.
- (4) There are now many examples of useful artificial waters for ducks up and down the country. Some of these were constructed specifically for farm purposes, but proved suitable for waterbirds. Other farm ponds, with modifications, could well have been suitable. Others again have been put in solely for waterfowl by farmers, shooters, conservationists, and acclimatisation societies. One has only to visit a property on which there is a good duck water, whether natural or artificial, to realise the big part it plays in the lives of the farmer and his family. In suitable areas, with the aid of the bulldozer, this

pleasure of owning waterbird habitat could become the possession at low cost of many hundreds of people. There are, of course, problems to be faced in the construction of artificial waters for waterbirds. To this end, the Wildlife Branch is preparing a booklet for the guidance of those interested in providing water areas for ducks and other waterbirds.

Whether it be in complying willingly at all times with the rules of shooting, utilising other species where available and thus lessening the pressure on grey duck, or in giving positive assistance by any means in their power to the four lines of action on habitat problems, waterfowl shooters can do much for their own sport, and its perpetuation.

HUNTING CANADA GEESE

In North America this goose is one of the most highly prized game birds, yet in our South Island, to some extent, it has had to be treated as a pest. This still largely applies. Shooters and acclimatisation societies have often raised the question of the importation of fresh species of game birds when, in effect, we have this species, which is not being utilised by sportsmen to any extent.

Shooters hunting Canada geese have to depart from New Zealand's traditional duck shooting from maimais, but the birds are there to be hunted. If not hunted in a sporting manner they have to be slaughtered to keep their numbers under control. The following notes are published in the hope that they will interest sportsmen in the better utilisation of a wasted sporting asset, so that eventually the numbers of Canada geese will be controlled by sportsmen and other means of control will not be required.

Goose shooting in New Zealand differs greatly from that in America, where most of the shooting is done on the birds' migratory flights. Here in New Zealand geese are local, live adjacent to their feeding grounds, and in consequence are easily disturbed. The following notes were compiled by an officer with practical experience in an area where the geese live on the river beds. They occasionally go out to large lakes into which the rivers empty. Birds out on the lakes come in to feed in the morning, and when they do this, good shooting is the rule as they are not disturbed by the first few shots.

In the first place, it is necessary to find out where they are feeding. If possible, this should be done the day beforehand, and if no cover is handy a hole should be dug about 2 ft deep, and about the same width. Using a sharp spade some rushes or similar vegetation are cut off, leaving about 2 in. of soil attached, as this will stand up quite well around the hole. Do not make the cover any bigger than is necessary, as geese tend to keep away from heavy cover. This method allows one to sit comfortably on the edge of the hole, at the same time being sufficiently under cover. It is important to be comfortable in the hide, thus avoiding too much movement, while at the same time being in a good position to shoot when the birds come over.

Decoys can be made from stiff, painted cardboard which is folded along the back, enabling the decoy to be spread out "tent-like". The neck is swivelled at the base, enabling the position of the head to be adjusted. Suitable decoys for New Zealand use are also manufactured in America. One type made by Wm. R. Jackson Co., 3131 Western Avenue, Seattle, Washington, "Johnson's Folding Goose Decoys, large", is supplied in packets of 12. Place the decoys on the far side of the feeding area away from the direction from which the geese are likely to come, and about 60 yards away from the hide, so that geese coming in will have to pass over the hide. When placing the decoys, do not bunch them, but scatter them well out to indicate feeding birds. Geese, when alarmed, bunch up ready to fly with their heads well up; at all cost avoid placing decoys in this stance.

Goose calls found suitable in New Zealand are "No. A-5 Perfect Goose Call" and "No. L-22 Regular Goose Call", both made by Philip S. Olt Co., Pekin, Illinois, U.S.A. The Olt Company also sells a gramophone record which can be used to obtain training in the correct rendering of goose calls. This is "Instruction Record No. G-101 Goose Calling". Use a call as little as possible. Geese sometimes come straight in to the decoys, but at other times will circle around high up. It is then that the call will often bring them in to the decoys. For example, during a shoot one lone goose came over very high and circled around several times, but did not look like coming in. After a couple of calls the bird swung round, came straight into the decoys, and was shot. This also happened with two other birds. Some 20 geese were shot for the morning, but without the call in all probability not one goose would have come in.

WILDLIFE PUBLICATIONS

A range of publications on wildlife and its problems in New Zealand has been published by the Wildlife Branch in recent years. A selection from these is listed below and copies are available from the Controller, Wildlife Branch, Department of Internal Affairs, P.O. Box 8007, Wellington.

Wildlife Publication Series

- No. 5 *Mortality and Survival of Grey and Mallard Ducks Banded in New Zealand*, by R. W. Balham and K. H. Miers.
- No. 17 *Acclimatisation of New Game Species* by Kaj Westerskov.
- No. 30 *Why do the Numbers of Game Animals Change*, by G. R. Williams.
- No. 40 *The Pheasant in New Zealand*, by Kaj Westerskov.
- No. 41 *Lead Poisoning in New Zealand Waterfowl*, by B. Wisely and K. H. Miers.
- No. 46 *The Kakapo*, by G. R. Williams.
- No. 51 *The Partridge as a Game Bird*, by Kaj Westerskov.
- No. 52 *The Conservation of Waterbirds and their Habitat in New Zealand*, by F. L. Newcombe.
- No. 55 *A Five-year Banding Study of the Takahe*, by G. R. Williams.

Leaflet Series

- Farm Ponds to Increase Wild Ducks.*
- Hunting in New Zealand.*
- Kiwi S O S.*
- Waterfowl Habitat Improvement Through Control of Raupo.*
- Protect Native Birds* — 14 photographs in colour.
- Building Artificial Waters for Wild Ducks.*